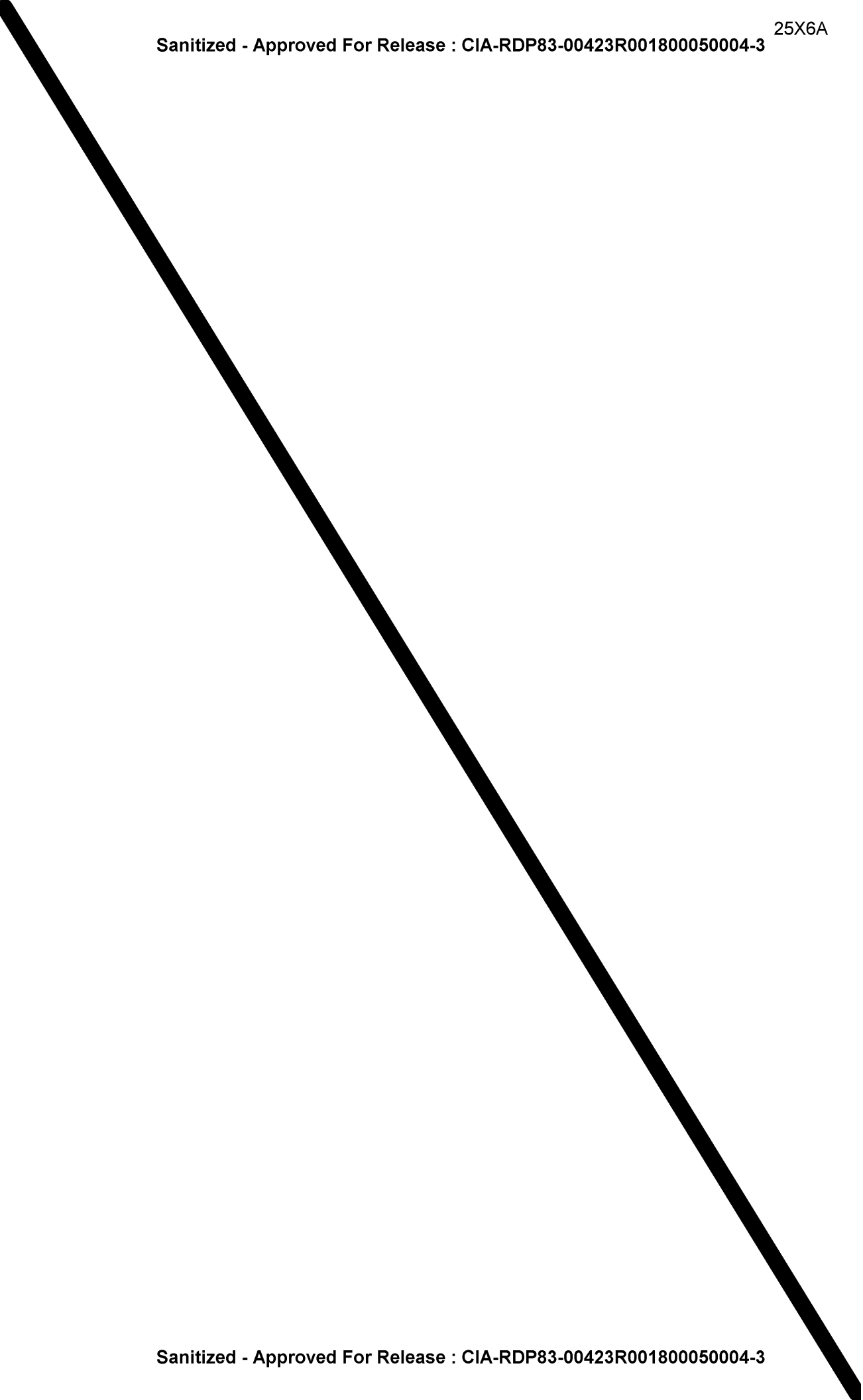

(5) The general nature and function of a fuel element in a power reactor and the general requirements for its use were discussed. The factors involved in selecting a fixed reactor coolant were discussed, including such criteria as ability to deliver heat to the reactor coolant, corrosion resistance, radiation stability and ease and economy of fabrication. Dr. Castelli seemed quite interested in the reasons for our choice of liquid sodium and was particularly interested in how the sodium system of the reactor would be filled initially. He was told there were two possibilities, (1) preheat the system above the melting point of sodium and continue to supply heat after filling, and (2) fill with NaK and extract the potassium after the system is in operation.

(6) A discussion of neutron economy revolving around our interest in fast liquid metal cooled breeder reactors.

(7) A discussion of means of controlling reactors, using the equation -

$$\text{Rate of change of neutron population} = \text{Production} - \text{Leakage} - \text{Absorption}$$

(7) Also briefly discussed were the use of steam flow and reactor cooling temperatures to set the power level of a nuclear power plant and how a temperature coefficient of reactivity works.

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